

# FITS

Times (and Training Requirements)  
Are a Changing

## FAA/Industry Training Standards



Mario Toscano photo

### Part 3 The Future of FITS

by Thomas Glista

*This is the third and last in a series of articles introducing the FAA/Industry Training Standards (FITS) Program. The first article focused on the overall concept of the FITS program. The second article focused on what the FITS program is doing now and who our launch customers are. Those of you who read the first two articles and who do not want to read an overview of FITS can skip the next three paragraphs. This article will focus on what we hope FITS will evolve into.*

If you look into the cockpit of today's modern general aviation airplanes, you can see GPS navigation, moving map displays, and even full glass cockpits. These advanced technology systems that previously were the sole domain of air-

lines and expensive corporate jets, have now trickled down into small, single-engine aircraft. In the past, displays, avionics, and navigation equipment all looked and worked pretty much the same no matter who manufactured the unit. (For example, a VOR head was a VOR head. You've seen one; you've seen them all.) Advanced systems and displays, on the other hand, look different and the way the pilot uses them may differ. If you try and program a Bendix/King® KLN 90B the same way you program a Garmin® GNS 430, it probably will not work very well. This brings us to a general aviation training problem.

Air carrier captains are required to take recurrent instrument proficiency training every six months and an aircraft check every 12 months (Title 14

of the Code of Federal Regulations (14 CFR) §121.441). Charter captains who are authorized to fly under IFR have a similar requirement (14 CFR §§135.293 and 135.297). Most corporate jets are large aircraft (over 12,500 lbs. maximum gross takeoff weight) that require a two pilot crew and the captain to hold a type rating in the aircraft. 14 CFR §61.58 requires these captains to complete a proficiency check at least every 12 months in an aircraft that is certificated for two pilots and a proficiency check at least every 24 months in the type of aircraft the pilot in command is flying. So these pilots are constantly taking recurrent and proficiency training in the type of aircraft they operate.

In general aviation we don't have these requirements. A private pilot





Garmin® 430. (Garmin® Corp. photo)

with a multi-engine and instrument rating could satisfy the regulations by taking a flight review every two years in a Cessna 150, then go fly off in a Mitsubishi MU-2. So why doesn't the FAA just create regulations that require general aviation pilots to take a practical test every six months with a designated examiner? First, the general aviation industry would not be very happy with new regulations that place a major financial burden on them. Second, the rulemaking process in the FAA takes years, and we do not have that kind of time. And third, and most importantly, it really is not necessary. Corporate operators have the same low accident rates as airlines, but without all of the regulations. FITS is working to take the best practices of the airlines, military, and corporate jets operators, and tailor them to the general aviation environment -- all the while increasing safety and convenience, and reducing the time and cost.

I must also explain what is the focus of the FITS program. FITS focuses on the segment of general aviation that uses single pilot, small reciprocating or jet-powered aircraft for transportation. Air carriers and larger two-pilot corporate jets already have extensive training requirements. The safety record of two-pilot corporate jets is just about the same as air carriers. The light-sport pilots (when the rule is finalized) and recreational pilots may be limited to the size and complexity of aircraft that they can fly, to what airspace they can operate in, to operate only in VFR (Visual Flight Rules) conditions, and to carry only

one passenger. This limits their potential exposure to hazards. Personal or professionally flown single-pilot aircraft for transportation with new technologies is the current focus of FITS.

Currently, FITS is developing and growing. Our "launch customers" are working closely with the FAA and the Air Transportation Center of Excellence for General Aviation (the Center for General Aviation Research-CGAR) to produce training standards for these customers. Our first set of launch customers is AirShares Elite, Elite Flight Center, and Cirrus Design. AirShares Elite provides an owner flown fractional ownership program for the Cirrus Design SR22. The Cirrus Design SR22 is an advanced technology piston engine-powered airplane. Elite Flight Center is the training entity for both transition training to the SR22 and initial pilot training. Our other "launch customer" is Eclipse Aviation. The Eclipse 500™ is an advanced technology small turbine powered airplane.

The FITS team is working hard on producing real products. We have finished the Cirrus SR22 transition syllabus. It is being used for the factory transition training. The syllabus may be changed as we gather data on the training. We are also writing the SR22 instructor syllabus, a recurrent training program, and a private pilot/instrument rating ab-initio syllabus. For the Eclipse, the FITS team is developing an Eclipse 500™ transition syllabus (type rating), recurrent training program, and instructor training program. The current (and aggressive) schedule plans to have all of these FITS prod-

ucts by September 30, 2003. Although these standards are for a specific type of aircraft, most of them will be converted to a generic template that a manufacturer or training provider can adapt to their specific aircraft or program.

Now, let's run through a few scenarios of what could happen when the FITS program has matured.

## Scenario 1

Mr. Joe Busy is a businessperson who is upset with the limitations and hassles of flying on airlines (hub and spoke system takes too long and the hassles of dealing with the airline and airport security) and sees the utility of today's fast and efficient single-engine piston aircraft (let's call it a FlightAir-1). He wants to be able to use it for transportation as soon as possible. Since VFR-only flight will not meet this Mr. Busy's needs, a private pilot certificate with an instrument rating will be required. The 14 CFR part 141 pilot school enrolls Mr. Busy in the private-instrument combined curriculum developed under the FITS program and approved under 14 CFR § 141.57, Special Curricula. This training mainly utilizes scenario-based training (train like you fly and fly like you train). Under this special curricula the minimum experience requirements and limitations on the use of simulation devices (personal computer-based aviation training device or PCATD, and flight training device or FTD) are not applicable. So in a few months, with 70-80 hours of flight time and 50 hours of simulation time, Mr. Busy receives a private pilot certificate with an instrument rating and can safely operate a FlightAir-1 IFR in the National Airspace System.

## Scenario 2

Francine Jones is a 200-hour private pilot with an instrument rating. She purchases a 1/8th share of a FlightAir-1 from Acme Airplane Management (AAM), an owner flown fractional ownership operator. AAM has used the FITS transition training tem-





UPSAT MX20. (UPSAT, photo)

plate and developed a transition program specifically for the FlightAir-1. Since the FAA has accepted this transition program, going through this program (and continuing with their recurrent program) allows Ms. Jones (a low-time pilot) to be insured to operate this high performance aircraft at a reasonable cost. Without this program, Ms. Jones might not have been able to get insurance at any cost. She arrives well-prepared for the transition program because three months before her training she was sent an interactive CD with the FlightAire-1 systems and performance training modules on them. When she arrives for transition training, a systems and performance quiz is first given to Ms. Jones. That way, the ground training portion will be tailored to her needs, and not waste time and money on things she already knows. As soon as she completes the transition program, she immediately goes to the recurrent training program.

### Scenario 3 Recurrent Training Program

The recurrent training syllabus is taking a customer friendly approach by giving the pilot a new recurrent training option. The main thrust of this recurrent program is continuous training throughout the biennium — sort of like learning credits that doctors and lawyers are required to accomplish. In this program Ms. Jones takes an on-line module every quarter. The modules are updated and changed periodically. In the fall and winter there might be a module on icing. In the spring and summer a module on thunderstorms. If the pilot is planning to fly from her home base in Florida to Boulder, Colorado, there will be a module on mountain flying. If security concerns change airspace restrictions, there will be a module on this. If the avionics package in the airplane gets upgraded with new capa-

bilities, this can be a module. At the end of each module the pilot can print out a certificate of completion. The last module is a flight with one of the AAM instructors who has been trained and accepted to provide this last module. The instructor reviews the completion certificates to ensure that the pilot has completed all the modules. The flight consists of a short cross-country scenario. Ms. Jones plans and executes the flight, with the instructor providing changes and distractions to not only evaluate her piloting skill and knowledge of the aircraft, but also her decision making, risk management, and single pilot resource management abilities. At the end of this flight she receives a certificate of completion. How is this approved as a flight review? 14 CFR §61.56(e) stipulates that a conventional flight review of §61.56(a) is not required if the pilot, within the preceding 24 calendar months, has satisfactorily accomplished one or more phases of an FAA-sponsored pilot proficiency award program. Since the FAA has approved this program as a pilot proficiency award program, the flight review requirement has been satisfied.

### Scenario 4 One-Stop Flight Review

Propeller Joe has not been in a continuous recurrent training program, so he schedules a full flight review at a local FBO with an instructor in their Cherokee 6. When scheduling, Joe asks if the CFI has been accepted by <sup>TM</sup>The New Piper Aircraft, Inc., to give a flight review in this airplane. The CFI has been through the appropriate New Piper flight instructor acceptance program. When Joe arrives (or even before), the instructor goes on to the FITS website and, through a menu system, inputs all pertinent information on the operation, pilot, and aircraft.





*Adam 500 in flight, and below, the Adam 700 in flight. (AdamAircraft photos)*

For example, the operation is a one-stop flight review. The pilot holds a private pilot certificate, airplane single engine land with an instrument rating. The aircraft is a Cherokee 6 equipped with a Garmin® 430 and a UPS Aviation Technologies (UPSAT) MX 20 with weather data link capabilities. When all this information has been entered, the website displays four possible FITS flight reviews. One has been written by Bendix/King®, one by the New Piper, one by National Flight Instructors Association (NAFI), and one by the University Aviation Association. Joe's insurance carrier has approved two of them. They choose one, print the training program and are ready to do the training. Again, this syllabus contains a short cross-country scenario that Joe will plan and execute.

All of these scenarios provide a pilot with the training appropriate to the equipment and operation with a knowledgeable instructor. Also, all these scenarios can be accomplished within the current regulations. These are only a few examples of what might be. There will be other options available. For example, instead of a recur-

rent training module every quarter, there might be an approved program with a module every four or six months. We are planning to develop training programs for individual pieces of equipment for those who retrofit new equipment in their aircraft. Another concern is the integration of this new equipment with other equipment. How does a Bendix/King® KLN 90B integrate with a UPSAT MX 20? We

will be working on these issues also.

So, how do we tie this together to get all these changes done? It will take lots of people and organizations working together. We need to get more than just two aircraft manufacturers (Cirrus Design and Eclipse Aviation) as part of FITS if we want to effect a change in safety and training philosophy and culture. We have been working hard on the future of



FITS by making contacts with prospective customers. Besides meetings with the established general aviation aircraft manufacturers (Cessna Aircraft and <sup>TM</sup>The New Piper Aircraft), we have had some discussion with Lancair® and have met with Adam Aircraft. Adam Aircraft is very interested in what we are doing.

Who will be doing the research on training? For example, if we intend to allow creditable time in FTDs and PCATDs over and above what the regulations call for, we need to know how much time and in what type of simulation device helps or hinders training. We have been working all along with CGAR on this issue. We also have had meetings with the University of Illinois and Averett University. AOPA/Air Safety Foundation is another resource for research. Of course, the manufacturers of the simulation devices would love to have their machines approved for additional use. We have made initial contacts with ASA and Elite Simulation Solutions.

Aircraft cockpits come with different options for instruments and displays. So we have talked with Garmin®, Bendix/King®, L-2 (which was Goodrich Avionics), and UPS - Aviation Technologies. All of these avionics manufacturers appear to be planning to have displays that will accept data linked weather displays. So we have had discussions with



Lancair® HITS cockpit. (Lancair® photo)

Weather Services International (WSI).

Some products, like the training CDs Ms. Jones received before arriving for her transition training program must be developed by someone. Consequently, we have had discussions with some training providers including Sporty's®, King Schools, and ElectronicFlight Solutions. They all appear to want to work with us.

There are times when a product is developed and just “thrown over the

fence” in hopes that someone will use it. We want to make sure that these best practices are used, so flying clubs and trade association have already been contacted. We are actively working with AOPA/Air Safety Foundation, National Air Transportation Association (NATA), General Aviation Manufacturers Association (GAMA), and the Small Aircraft Manufacturers Association (SAMA). We have met with the American Bonanza Society and the Cirrus Owners and Pilots Association.

When it comes to really looking into the future, there is always NASA. Currently NASA has a program underway called the Small Aircraft Transportation System (SATS). The SATS website is <http://sats.larc.nasa.gov/main.html>. The Congressional mandate is for the SATS program to validate the following four operational capabilities:

- Higher Volume Operations in Non-Radar Airspace and at Non-Towered Airports
- Lower Landing Minimums at Minimally Equipped Landing Facilities
- En Route Procedures and Sys-



Lancair® Columbia 500. (Lancair® photo)





The Avidyne FlightMax EX500. (Avidyne photo)

tems for Integrated Fleet Operations

- Increase Single-Pilot Crew Safety & Mission Reliability

We have initiated discussions with some SATS members on the possible role of the FITS program on the increase of single-pilot crew safety and mission reliability.

Another piece we haven't forgotten is the FAA inspectors and designated pilot examiners. We have an entire FITS workgroup made up of FAA aviation safety inspectors looking at the FITS team and products. This team will recommend inspector training and develop guidance. Appropriate portions of this guidance can be converted for designated examiner purposes.

What are the incentives for a pilot to use a FITS? I have hinted at some of the incentives: reduced insurance rates (or for some, just the ability to get insured), training at the pilot convenience, lower cost of training with additional use of simulation devices,

and training that is pertinent to the type of flying the pilot does. But the most important incentive is that we will have safer pilots and that benefits all of aviation.

FITS now has a website at <[www.faa.gov/avr/afs/fits](http://www.faa.gov/avr/afs/fits)>. It is currently very simple, but we had to start somewhere. It contains additional in-depth information on the FITS program, a few of the FITS products, and links to associated websites (i.e., Cirrus Design, Eclipse Aviation, Center for General Aviation Research, Avidyne, etc.). We plan for this website to house other information. I have recently talked to the National Program Manager, Vintage and Surplus Military Aircraft. He needs a place to make the industry training curriculums for vintage and surplus military aircraft available to the public. The FITS website would be a place for that. We will add links to pertinent FAA and industry offices. FITS is not planning to have a supply of paper documents. All standards will be electronic on the website. As the FITS program evolves so

will the website.

The FITS program is growing. We are producing specific training curriculums for our launch customers. Many of these initial products will be converted to generic standards that can be customized to apply to other operators. An outreach effort is underway making initial contact with other aviation entities. We are doing this because FITS is like a puzzle (a BIG and complex puzzle). Without all the pieces in place, the picture will not come together. Our website is up and will grow and change as the FITS program grows and changes. We have ambitious plans to increase pilot safety by better, more convenient, more efficient, and more pertinent training. And we will do this almost exclusively within the current regulations.



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